

## **REMARKS / ARGUMENTS**

### **1. Dayco / McKesson Disclosure**

In accordance the undersigned's current understanding of the obligations imposed by *Dayco Products, Inc. v. Total Containment, Inc.*, 329 F.3d 1358 (Fed. Cir. 2003) and *McKesson Information Solutions, Inc. v. Bridge Medical, Inc.*, 487 F.3d 897 (Fed. Cir. 2007), the following co-pending application(s) whose file history may contain material information are identified. In assessing the patentability of the pending claims, the Office is respectfully requested to review the file history of each the listed co-pending application(s), determine whether such co-pending application has "similar subject matter" and, if so, consider each Office Action, including each reference on which a rejection is based, and each paper submitted by applicant therein.

- a. Application serial no. 11/164,187, filed on November 14, 2005 and entitled *Integrated Heat Exchanges In A Rack For Vertical Board Style Computer Systems*, issued on May 6, 2008 as US 7,367,384.
- b. Application serial no. 12/052,599, filed on March 20, 2008 and entitled *Integrated Heat Exchanges In A Rack For Vertical Board Style Computer Systems*, as a continuing application of serial no. 11/164,187. This application is undergoing Preexam processing. A preliminary amendment was filed on June 2, 2008.
- c. Application serial no. 11/308,267 filed on March 14, 2006 and entitled *Method and Apparatus for Cooling Electronic Enclosures*, received a Final Rejection from Examiner Ljiljana Ciric on October 18, 2007. Examiner Ciric issued a Final Rejection on October 18, 2007 and Advisory Action on February 5, 2008. Assignee filed an RCE on March 6, 2008 and a Supplemental Response on May 20, 2008.
- d. Application serial no. 11/458,732 filed on July 20, 2006 and entitled *Electronic Equipment Cabinet with Integrated, High Capacity, Cooling System, and Backup Ventilation*, is docketed and ready for examination by Examiner Melvin Jones.
- e. Application serial no. 10/904,889, filed on December 2, 2004 and entitled *Cooling System for High Density Heat Load*, is currently pending before Examiner Emily I. Nalven. Examiner Tatiana Delorm issued a Non-Final Rejection on July 20, 2007 and Assignee responded to that Office Action on November 30, 2007 and filed a supplemental response on February 4, 2008.

**2. Petition to Correct Inventorship**

Assignee notes that it filed a Petition to Correct Inventorship pursuant to 35 U.S.C. § 116 and 37 C.F.R. § 1.48 on December 10, 2007. No disposition of that petition has been received.

**4. Response to March 3, 2008 Office Action**

For the convenience of the Examiner and clarity of purpose, Assignee has reprinted the substance of the Office Action (not necessarily in order) in *9-point bolded and italicized font*. Assignee's arguments immediately follow in regular font.

***12. Claim 31 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. See the office action dated 6/8/2007.***

Assignee thanks the Examiner for the favorable treatment afforded claim 31. Claim 31 depends directly from claim 26. The claim elements provided by claim 31 are:

***“a controller operably coupled to the second heat exchanger to maintain the working fluid in phase transition within the first heat exchanger.”***

While Assignee agrees that claim 31 is patentably distinct, claim 31 is believed to be too narrow in scope in for purposes of an independent claim. Thus, Assignee has chosen to incorporate ***some*** but not all of the claim elements of claim 31 into independent claim 26. More specifically, Assignee has amended claim 26 to include the following recitation:

**a controller operably coupled to the system to control the pressure or temperature of the working fluid supplied to the first heat exchanger.**

Assignee contends that this amendment to claim 26 renders that claim patentable for at least the same reasons that the Examiner considers claim 31 patentable. Support for this amendment is clearly given in at least the following paragraphs (emphasis supplied):

***[0018] In another aspect of this embodiment, the computer cabinet 202 further includes a plurality of heat exchangers 230 (identified individually as a first heat***

exchanger 230a, a second heat exchanger 230b, and a third heat exchanger 230c) positioned in the air flow path 216. As described in greater detail below, each of the heat exchangers 230 can be configured **to circulate a working fluid (not shown) received from the heat removal system 240** via an inlet line 241. After circulating through the heat exchangers 230, the working fluid returns to the heat removal system 240 via an outlet line 242.

[0019] In one embodiment described in greater detail below, the working fluid can include a refrigerant in phase transition from a liquid to a gas. In this embodiment, **the working fluid passes through a condenser 244 and a pump 246 (both shown schematically in FIG. 2) after returning to the heat removal system 240. The condenser 244 cools the returning working fluid and condenses it from the gaseous state to the liquid state.** The condenser 244 can utilize a chilled-water circuit 247 for this purpose. In other embodiments, other types of condensers and/or refrigeration systems can be used to condense working fluid. **The pump 246 circulates the working fluid back to the heat exchangers 230 via the inlet line 241. The static pressure of the working fluid is controlled** to maintain the working fluid in phase transition at least through the heat exchangers 230.

[0031] If a refrigerant in phase transition is used as the working fluid 570, the refrigerant will absorb heat from the air only if the air temperature is above the boiling point of the refrigerant. If the air temperature is below the boiling point, the air will cool the refrigerant, causing some of the gaseous portion to condense into liquid. Either way, as the refrigerant changes phase, it does so at a constant temperature such that TE.sub.2 will be equal to TE.sub.1 when using a refrigerant in phase transition as the working fluid 570. Thus, a refrigerant in phase transition can adequately cool the second computer module 350b at the relatively hot second location 582 without overcooling the first computer module 350a at the relatively cool first location 581. In one embodiment, for example, a refrigerant having a boiling temperature of between about 45.degree. F. and about 75.degree. F. can be used as the working fluid 570. In another embodiment, the refrigerant R134A, having a boiling temperature of between about 50.degree. F. and about 65.degree. F. (e.g., about 55.degree. F.) can be used as the working fluid 570. In a further aspect of this embodiment, **the boiling point of such a refrigerant can be controlled by controlling the static pressure, subcooling the refrigerant, or increasing the condensing capacity of the condenser 244 with the heat removal system 240 (FIGS. 2 and 4).**

Assignee submits that for at least these reasons claim 26 is patentable, and its dependents, claims 27 – 29 and 32, are likewise patentable. Claim 31 has not been canceled.

Appl. No. 10/805,875  
Amdt. Dated 05/30/2008  
Reply to Office Action of 03/03/2008

***1. The Information Disclosure Statement filed on 1/10/2008 has been considered and is attached hereto. The references with respect to DE 19804901, DE 29908370 G. Klinberg, have not been considered since they are not accompanied by a concise explanation of the relevance and a written English translation (at least a portion thereof). Additionally, the Examiner notes that only the first page of DE 19804901 has been supplied to the office.***

Assignee will attend these issues by separate paper.

***2. Claims 26 and 72 are objected to because of the following informalities: Claim 26 recites, "the second heat exchanger" which lacks antecedent basis.***

Claim 26 has been amended to correct this deficiency.

***Claim 72 recites (twice), "disposed the chassis" which is incorrect. Appropriate correction is required.***

Claim 72 has been amended to correct this deficiency.

***3. Claims 1, 3, 4, 7, 12, 13, 19, 26, 28, 29, 32, 33, 36-43, 57, 60, 61 are rejected under 35 U.S.C. 102(b) as being anticipated by Miller et al. (US 6,305,180 - hereinafter, "Miller").***

Rejected independent claims 1 and 57 have been amended similarly to independent claim 26, discussed above. More specifically, but without prejudice to the actual amendments made, each of independent claims 1 and 57 now require, among other things and in paraphrase (i.e. the claim language controls):

- 1) a heat exchanger that is spaced apart from the chassis; and
- 2) a controller for or controlling the pressure or temperature of the working fluid supplied to the chassis heat exchangers.

Support for these amendments may be found in Figures 2 and 4 and in paragraphs 18, 19 and 30. Assignee contends that independent claims 1 and 57, and their referenced dependents, are patentable for at least the reasons expressed by the Office for claim 31 and

Appl. No. 10/805,875  
Amdt. Dated 05/30/2008  
Reply to Office Action of 03/03/2008

discussed above for amended claim 26. Reconsideration and withdrawal of these rejections are respectfully requested.

Assignee has chosen not to respond at this time to the Office's characterization of the prior art or Assignee's claims. Assignee does not accede to Office's characterization of the prior art or Assignee's claims, and reserves its right to challenge or otherwise comment on those characterizations at a later time.

***4. Claims 8-11, 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller.***

***5. Claims 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller in view of Khrustalev et al. (US 2003/0010477 - hereinafter, "Khrustalev").***

***6. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miller in view of Khrustalev and further in view of Iizuka et al. (US 6,258,293 - hereinafter, "Iizuka").***

***7. Claims 27, 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller in view of Salt (US 5,603,375).***

***8. Claim 51, 54 and 72 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miller in view of James et al. (US 4,756,164, hereinafter, "James").***

***9. Claim 52 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miller in view of James and further in view of Salt.***

***10. Claims 53 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miller in view of James and further in view of Iizuka et al. (US 6,258,293 - hereinafter, "Iizuka").***

***11. Claim 59 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miller in view of Iizuka.***

Rejected independent claims 51 and 72 have been amended similarly to independent claim 26, discussed above. More specifically, but without prejudice to the actual amendments made, each of independent claims 51 and 72 now require, among other things and in paraphrase (i.e. the claim language controls):

- 1) cooling the working fluid or refrigerant in an external heat exchanger that is spaced apart from the chassis; and

- 2) controlling the pressure or temperature of the working fluid that is supplied to the chassis heat exchangers.

Support for these amendments may be found in Figures 2 and 4 and in paragraphs 18, 19 and 30. Assignee contends that independent claims 51 and 72, and their referenced dependents, are patentable for at least the reasons expressed by the Office for claim 31 and discussed above for claim 26. Reconsideration and withdrawal of these rejections are respectfully requested.

Assignee has chosen not to respond at this time to the Office's characterization of the prior art or Assignee's claims. Assignee does not accede to Office's characterization of the prior art or Assignee's claims, and reserves its right to challenge or otherwise comment on those characterizations at a later time.

#### **4. Other Amendments**

In addition to the amendments discussed above in relation to the Office Action, Assignee has chosen to amend a variety of claims for reasons unrelated to any rejection or objection. Claims 4, 19, 22 and 25 have been amended to conform them to claim 1 and/or to change dependency. Claims 26-29, 31-40 and 42-43 have been amended to refer to "electronics compartment" rather than the potentially narrower "computer module compartment." Support for this amendment may be found at paragraph 29. Claim 51 has been amended to remove the reference to a refrigerant "source." Assignee believes this reference is unnecessary and unduly limiting. Claims 51-53 have been amended to replace "working fluid" with "refrigerant." Claim 72 has been amended to remove "source of working fluid" as unnecessary and unduly limiting, and the "third" heat exchanger has been relabeled the "external" heat exchanger.

Assignee believe this is a complete listing of amendments made other than in response to the Office Action, but the actual claim amendments shall control any discrepancies.

**5. New Claims**

New claims 73 through 84 are presented herein. Claims 73 – 78 depend directly from the independent claims and further define the “controller” and “controlling” aspects of the independent claims as set forth in the application. Namely, these claims specify that control is accomplished by controlling the static pressure of the working fluid; subcooling the working fluid; increasing the heat transfer capacity of the external heat exchanger; or any combination thereof. Support for these claims can be found at paragraph 31. Claims 79 – 84 are modeled after claim 57. Support for these claims can be found throughout the application and specifically in paragraphs 18, 19, 21, 24 and 31.

**6. Conclusion**

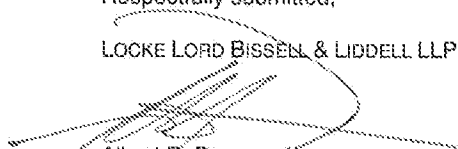
After the amendments presented herein, a total of 50 claims are pending with 6 being of independent form. Claims 2, 3, 5, 6, 14–18, 20, 21, 25, 30, 41, 44–50, 54, 55, 56 and 62–71 have been canceled without prejudice in this or a previous paper. Claim 35 is withdrawn, but is amended herein. Assignee submits that each claim presented herein is patentable over the art of record. A timely notice of allowance is respectfully requested.

Appl. No. 10/805,875  
Amdt. Dated 05/30/2008  
Reply to Office Action of 03/03/2008

Assignee thanks the Examiner for his consideration and effort on this file. If there are any questions or if additional information is needed, the Examiner is invited to telephone or email the undersigned.

Respectfully submitted,

LOCKE LORD BISSELL & LIDDELL LLP

A handwritten signature in dark ink, appearing to read 'Albert B. Deaver, Jr.', is written over the printed name and firm name.

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